

3.2 Air Quality

This section examines the potential air quality impacts resulting from construction and operation of the proposed residential development and describes potential air quality impacts upon proposed land uses from outside influences. Short-term and long-term air quality impacts are analyzed and addressed in this section. Cumulative air quality impacts are addressed in Section 5.0 of this EIR. Short-term effects are those resulting from site preparation and construction activities. Long-term Project effects are primarily the result of increased traffic in the area, landscape maintenance, and other activities that would occur once the residences proposed on-site are occupied. This section covers impacts related to pollutant concentrations, as well as mass emissions, as appropriate.

Environmental Setting

Terrain, wind, atmospheric stability, and sunlight can affect air quality. The Project is proposed near the city of Auburn in western Placer County, an area with rolling topography, hot and dry summers, and cool and wet winters. On summer days when the ground temperature is warm early in the day, there is more time during the day for ozone-forming chemical reactions involving sunlight (pollutants typically are transported east during the night). In the Project vicinity and throughout the lower Sacramento Valley, calm atmospheric conditions can prevent mixing of air layers at certain times of the year, trapping air pollutants near the ground level.¹

This portion of Placer County is located within the Sacramento Valley Air Basin, which is bounded by the coast ranges on the west and the Sierra Nevada Mountains on the east. Wind direction tends to be from the southwest, and as such, the Project vicinity is affected by the transport of pollutants from portions of Placer County south of the Project site and beyond.

Emissions Sources

The Project site is located in the jurisdictional area of the Placer County Air Pollution Control District (Air District), which is described in more detail in the Regulatory Setting sub-section (see **Figure 3.2-1**). Mobile sources, such as cars, buses, planes, trucks, and trains produce the great majority of the Air District's air pollution. Area/stationary sources of air pollution include water heaters, lawn mowers and leaf blowers, barbecues, gas stations, dry cleaners, crematories, auto body shops, auto repair shops, restaurants, home heating, backyard burning, solvent and paint use, and other sources. Excluding the naturally occurring sources, 72 percent of ozone precursors are from mobile sources, and 28 percent are from stationary and area sources.²

Naturally-Occurring Asbestos

As indicated in the Geology, Soils, and Mineral Resources section of this EIR, Section 3.5, the Project site is underlain by Paleozoic to Mesozoic metavolcanic rocks (commonly referred to as greenstone) and ultramafic rocks (serpentine). The western portion of the site is generally covered by weathered asphalt pavement, gravel, or concrete. Outcrops of greenstone exist on-site at the ground surface in the southeast portion of the subject site, and exposed serpentine lies along a scarp in the west central portion of the Project area. A Phase I Environmental Site Assessment prepared for the Project site corroborates that a portion of the Project site is underlain by ultramafic rock (serpentine), which may contain naturally occurring asbestos (NOA).³ These rocks are associated with NOA minerals such as chrysotile, actinolite, and tremolite. A geotechnical report prepared for the Project reports on testing of samples collected on-site, indicating that with the exception of a trace amount of chrysotile in one sample (less than one percent), mineralogic analysis did not reveal the presence of NOA.⁴

Local Air Quality Trends

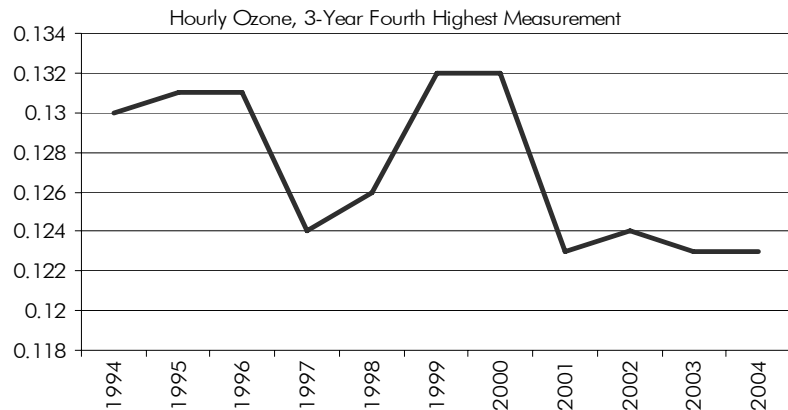
The rate of urban development and population growth in Placer County has important consequences for air pollution. Growth throughout the region has caused an increase in vehicle miles traveled which, considering the proportion of pollutants contributable to mobile sources, has resulted in nonattainment for federally mandated ambient air quality standards. Development proposals such as the Project contribute to this growth by offering new places of employment or residence, or establishing other activities that attract or generate new automobile trips, as well as creating new area or stationary

**Table 3.2-1
Hourly Ozone Exceedances**

Hourly Ozone Standard	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
National Exceedance Days	0	4	2	1	0	5	2	0	0	3	0	0
State Exceedance Days	15	28	26	22	4	15	24	22	22	16	14	10

Source: Monitoring information from the Auburn-Dewitt-C Avenue Air Quality Monitoring Station, California Air Resources Board, www.arb.ca.gov.

**Figure 3.2-1
Hourly Ozone, 3-Year 4th Highest Measurement**



Source: Monitoring information is from the Auburn Monitoring Station, California Air Resources Board, www.arb.ca.gov.

Notes: The national 1-hour standard is violated when the fourth highest 1-hour observation, after rounding to two decimal places, over three years is greater than 0.12 parts per million.

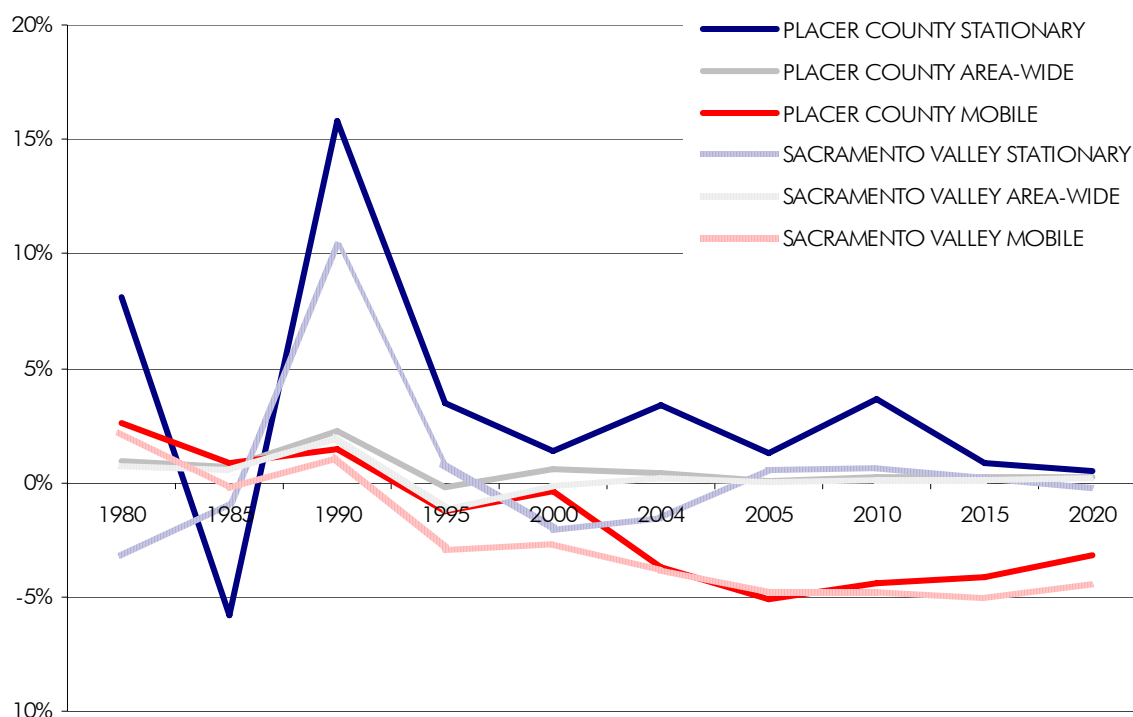
sources of pollution.

Despite the substantial growth, ozone exceedances between 1993 and 2004 do not show a steady increase at the Auburn-Dewitt-C Avenue air quality monitoring station.

Similarly, the three-year, fourth highest measurement, on which the federal ozone exceedance standard is based, does not show a steady and substantial increase at this air quality monitoring station for the last 10 years (see **Table 3.2-1**, and **Figures 3.2-1** and **3.2-2**).

Placer County's oxides of nitrogen (NO_x) sources and trends over the last 25 years have generally followed that of the Sacramento Valley Air Basin as a whole. Mobile sources of NO_x have generally decreased since the 1990s for both the valley as a whole and Placer County.

Figure 3.2-2
Placer County and Sacramento Valley Air Basin NO_x Trends and Sources
Average Annual Percentage Change

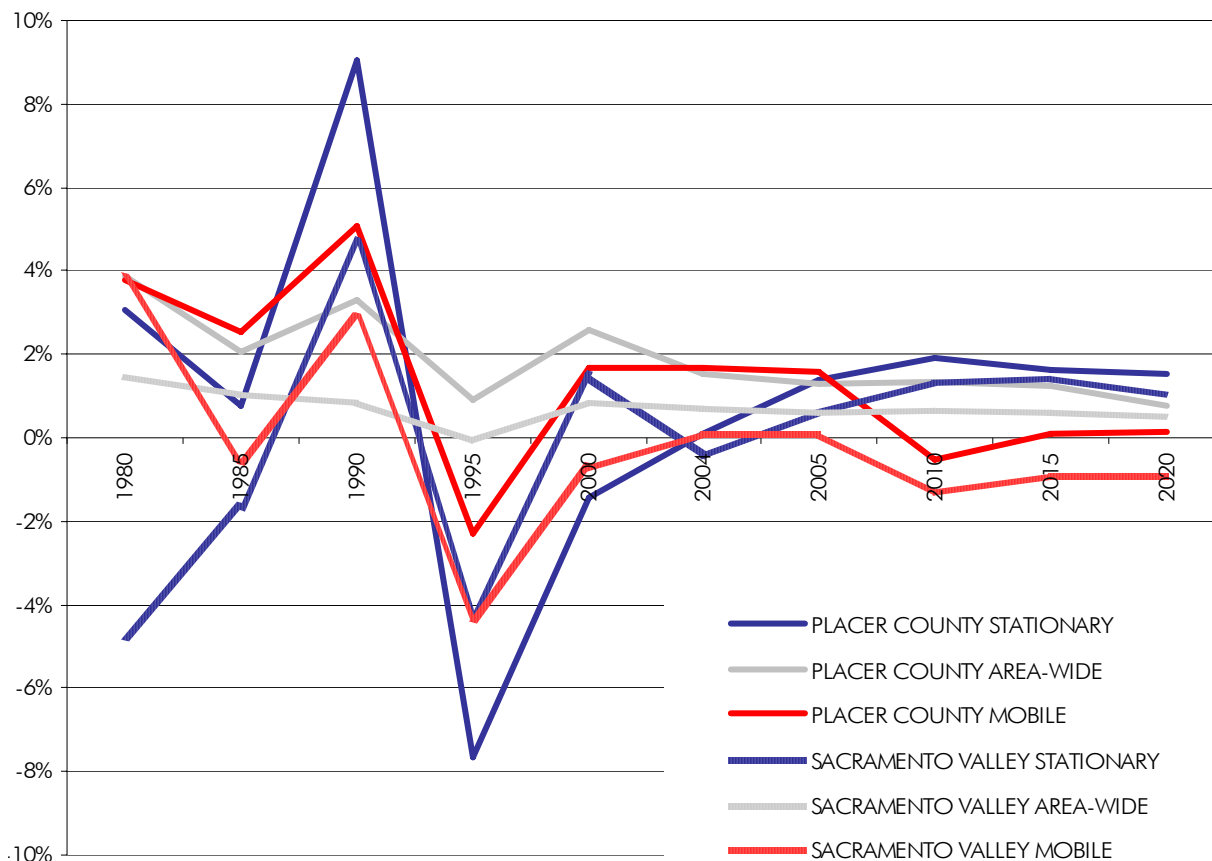


Particulate matter was monitored at the Auburn air quality monitoring station for only 1987, and 1995 through 1997, so local trends are especially difficult to discern. In the Sacramento Valley as a whole, average particulate matter concentrations have generally been in decline, with some variability over the last several years, with a 24 percent decrease in the three-year annual average between 1989 and 2003.⁵ The number of exceedance days also decreased during this period. However, direct emissions of PM_{10} increased in the Sacramento Valley Air Basin between 1975 and 2000. It is anticipated that direct emissions will continue to increase through at least 2020.⁶ In

general, particulate matter is mostly from area-wide sources, such as dust from roads, construction and demolition, and residential fuel combustion.

Placer County's PM₁₀ sources and trends over the last 25 years have closely followed that of the Sacramento Valley Air Basin as a whole. For example, during the late 1980s, when stationary sources and mobile sources of particulate matter were on the rise in the valley, the same sources were on the rise in Placer County (see **Figure 3.2-3**).⁷ In general, during the last 25 years, the primary air pollutants of concern (ozone and particulate matter) have increased at higher rates (or have decreased at lower rates) compared to the Sacramento Valley Air Basin in general, reflecting the relatively high degree of urban development in Placer County. The projections available through 2020 exhibit this same trend – slightly larger increases in pollution in Placer County compared to the entire Sacramento Valley (in percentage terms).

**Figure 3.2-3
Placer County and Sacramento Valley Air Basin PM₁₀ Trends and Sources
Average Annual Percentage Change**



Regulatory Setting

Air quality is monitored, evaluated, and regulated by federal, State, regional, and local regulatory agencies and jurisdictions, including the United States Environmental Protection Agency (EPA), the California Air Resources Board (CARB), and the Air District. The EPA, CARB, and the Air District develop rules and/or regulations to attain the goals or directives imposed by legislation. Air quality regulations provide a basis for examining the impacts of projects under CEQA, and the enforcement of local air quality regulations can ensure that potential impacts of projects are reduced to the extent feasible, as discussed below.

Federal Clean Air Act

National Ambient Air Quality Standards (NAAQS) were established by the U.S. Environmental Protection Agency for common air pollutants that can threaten human health, harm the environment, and damage property, as specified in the Clean Air Act (see **Table 3.2-2**).

NAAQS consist of two parts: (1) the allowable concentration of a criteria pollutant; and, (2) the average time period during which the pollutant is measured. The primary concentration standards are based on studies of the effect of the pollutant on human health, and secondary standards are based on the effects on crops, vegetation, and in some cases, materials (e.g., paint). Damage from the pollutant is evaluated based on exposure to a high concentration over a short period of time (e.g., one hour) or to a low concentration during a longer period (e.g., eight hours or 24 hours). Some pollutants, such as ozone and carbon monoxide, are evaluated for both time periods because they can have considerable impacts over both the short and long term.

States have delineated air basins based upon similar meteorological features and without consideration of political boundaries, as required by the Federal Clean Air Act. Criteria air pollutants are monitored within these air basins, which are classified as “attainment” or “nonattainment” based on whether, within the basin (or within a certain portion of the air basin), the standards are or are not met. Criteria air pollutants include carbon monoxide, ozone, nitrogen dioxide, sulfur dioxide, particulate matter, and lead. These pollutants are monitored under the provisions of the Federal Clean Air Act and California Clean Air Act (see sub-section below on the California Clean Air Act).

California Clear Air Act

The California Clean Air Act also established ambient standards for the six criteria pollutants mentioned above in the section on the Federal Clean Air Act, and has also established standards for sulfates, vinyl chloride, visibility reducing particles, and hydrogen sulfide. In general, the California standards tend to be more stringent than do the standards promulgated by EPA in compliance with the Federal Clean Air Act. The California Air Resources Board (CARB) establishes State ambient air quality standards and motor vehicle emission standards, conducts air quality research, and oversees the activities of local/regional air pollution control districts and air quality management districts.

Table 3.2-2
Air Pollution Standards, Sources, and Effects

Pollutant	State Standard	Federal Primary Standard	Sources	Primary Effects
Ozone (O ₃)	0.09 ppm 1-hr. avg.	--	Atmospheric reaction of organic gases with nitrogen oxides in sunlight	Aggravation of respiratory and cardiovascular diseases, irritation of eyes, impairment of cardiopulmonary function, plant leaf injury
	--	0.08 ppm 8-hr. avg.	Same as above	Same as above
Carbon Monoxide (CO)	9.0 ppm, 8-hr. avg., 20 ppm, 1-hr. avg.	9.0 ppm 8-hr. avg. 35 ppm 1-hr. avg.	Incomplete combustion of fuels and other carbon-containing substances such as motor vehicle exhaust, natural events, such as decomposition of organic matter	Reduced tolerance for exercise, impairment of mental function, impairment of fetal development, death at high levels of exposure, aggravation of some heart diseases (angina)
Nitrogen Dioxide (NO ₂)	0.25 ppm, 1-hr. avg.	0.053 ppm annual avg.	Motor vehicle exhaust, high-temperature stationary combustion, atmospheric reactions	Aggravation of respiratory illness, reduced visibility, reduced plant growth, formation of acid rain
Sulfur Dioxide (SO ₂)	0.25 ppm 1-hr. avg. 0.05 ppm 24-hr. avg. with ozone > = 0.04 ppm, 1 hr. avg. or TSP > = 100 μg/m ³ 24-hr. avg.	0.03 ppm annual avg. 0.14 ppm 24-hr. avg.	Combustion of sulfur-containing fossil fuels, smelting of sulfur-bearing metal ores, industrial processes	Aggravation of respiratory diseases (asthma, emphysema), reduced lung function, irritation of eyes, reduced visibility, plant injury, deterioration of metals, textiles, leather, finishes, coatings, etc.
Fine Particulate Matter (PM ₁₀)	20 μg/m ³ , annual arithmetic mean; > 50 μg/m ³ 24-hr. avg.	50 μg/m ³ annual arithmetic mean 150 μg/m ³ 24-hr. avg.	Stationary combustion of solid fuels, construction activities, industrial processes, industrial chemical reactions	Reduced lung function, aggravation of the effects of gaseous pollutants, aggravation of respiratory and cardio-respiratory diseases, increased coughing and chest discomfort, soiling, reduced visibility
PM _{2.5}	12 μg/m ³ annual arithmetic mean	15 μg/m ³ annual arithmetic mean, 65 μg/m ³ 24-hr. avg.	Same as above	Same as above
Lead (Pb)	1.5 μg/m ³ 30-day avg.	1.5 μg/m ³ calendar quarter	Contaminated soil	Increased body burden, impairment of blood formation and nerve conduction
Visibility Reducing Particles	Visual range < 10 miles at relative humidity < 70%, 8-hr. avg. (9am - 5pm)			Visibility impairment on days when relative humidity is less than 70 percent

Notes: μg/m³ = micrograms per cubic meter of air; ppm = parts per million of air, by volume.
Source: California Air Resources Board Web Site: www.ca.arb.gov

Attainment Status

The Project vicinity in Placer County has a nonattainment designation according to federal and State ozone ambient air quality standards, and PM_{10} for State standards. The Project vicinity portion of Placer County has been designated severe nonattainment for the federal one-hour ozone standard and serious nonattainment for the State one-hour ozone standard. All portions of Placer County have been designated as nonattainment with the new National Ambient Air Quality Standard for ozone (eight-hour averaging time), along with the rest of the Sacramento region. It also appears Placer County will be designated nonattainment for federal fine particulate matter standards ($PM_{2.5}$).⁸

Ozone is the primary constituent of what is commonly referred to as “smog.” Ozone can irritate eyes and human respiratory systems and can damage vegetation. Ozone concentrations vary by season and day-to-day according to the weather, and are typically very low in winter months. Ozone is not directly produced by automobiles, industry, or any other pollution source, but rather is the product of chemical reactions between nitrogen oxides (NO_x), reactive organic gases (ROG), and the sun.

Recent and ongoing research has unveiled further complexity regarding the relative levels of ozone precursors and their relationship to overall ozone levels. Some of this research has suggested that changes in human activities cause weekend reductions in NO_x emissions (associated with heavy-duty trucks and other sources) to be greater than reductions in ROG emissions (associated with light-duty vehicles and other sources), producing higher overall ozone levels on the weekend in some regions. Higher ratios of ROG to NO_x generally are more favorable for ozone production.⁹

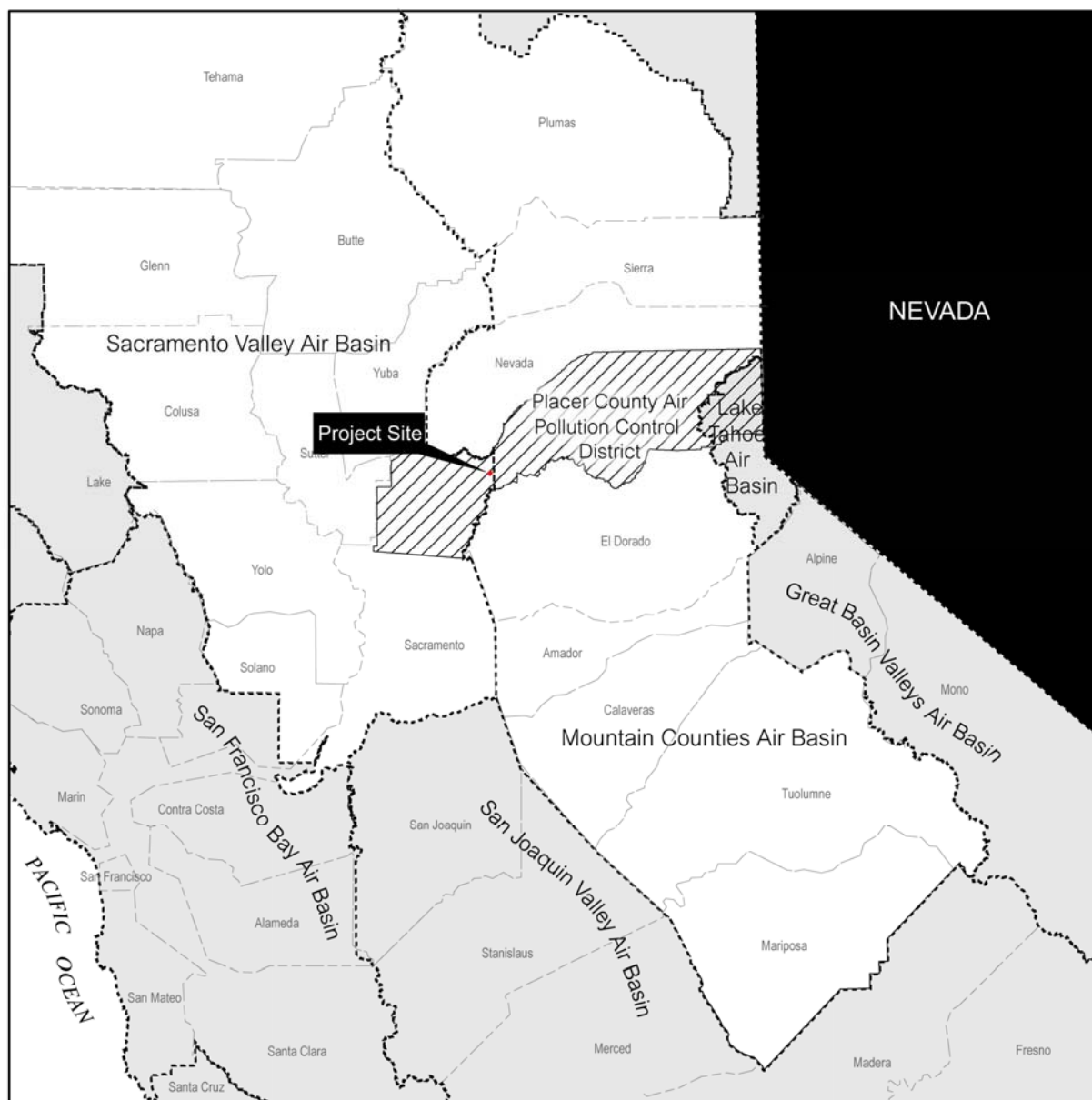
Particulate matter consists of very small solid or liquid particles found in the air – the “10” and “2.5” in PM_{10} and $PM_{2.5}$ represent the aerodynamic diameter of the particles in microns (1 micron = 0.0000394 inch). Some particles are large or dark enough to be seen as soot or smoke, while others require a microscope for direct observation. Particulate matter can be directly emitted through activities such as site preparation/grading or can be formed through chemical reactions.¹⁰ Particulate matter, when inhaled, can damage respiratory systems and cause cancer.

Placer County Air Pollution Control District

Portions of Placer County are within the boundaries of three air basins: the Sacramento Valley Air Basin, the Mountain Counties Air Basin, and the Lake Tahoe Air Basin (**Figure 3.2-4**).



Source: ARB, www.arb.ca.gov/design/adm/s4_ozone.pdf.



Source: California Air Resources Board; Adapted by Cotton/Bridges/Associates, 2005

Legend

- Air Basin Boundaries
- ▨ Placer County Air Pollution Control District
- County Boundaries



Figure 3.2-4
Sacramento Valley Air Basin and
Placer County Air Pollution
Control District

The Sacramento Valley Air Basin is shared with eight other air districts that are wholly or partially within the Sacramento Valley Air Basin: Butte County Air Quality Management District, Colusa County Air Pollution Control District, Feather River Air Quality Management District (Sutter and Yuba Counties), Glenn County APCD, Sacramento Metropolitan Air Quality Management District, Shasta County Air Pollution Control District, Tehama County Air Pollution Control District, and Yolo-Solano Air Quality Management District.¹¹

The Air District and CARB collectively are responsible for compliance with the Federal Clean Air Act (established in 1977 and amended 1990), which require the development and periodic updating of air quality plans that become part of the State Implementation Plan (SIP). Attainment plans are required to address pollutant emissions for which air districts are in nonattainment. Through these plans, the Air District prepares inventories of pollution sources and adopts emission reduction strategies to achieve attainment. District rules are approved by CARB and the U.S. Environmental Protection Agency. The intent of these air quality plans is to bring the Sacramento Air Basin, including the Project vicinity, into attainment for ozone and PM₁₀. These plans consist of adopted measures, emission inventories, contingency measures, and demonstration of emission reductions, all of which are designed to ensure the region will reach attainment of ozone and PM₁₀ standards. Failure to adopt rules required to meet SIP commitments can bring serious federal sanctions, such as additional permitting requirements for stationary sources of emissions and loss of highway funding. The Air District also promulgates and enforces various rules that are designed to achieve attainment or otherwise maintain or improve air quality in the vicinity, including Rule 218 Architectural Coatings, Rule 202 Visible Emissions, Rule 228 Fugitive Dust, and other rules that may apply to the Project.

The Air District coordinates its attainment efforts with CEQA document review and commenting and through the development of CEQA significance thresholds, which are used to evaluate the impacts of proposed development projects, such as the Project. Mitigation measures are recommended by the Air District to match the level of anticipated impact. In addition to Air District standards, concentration limits in the State and federal ambient air quality standards are also used as significance thresholds. In the 1994 State Implementation Plan, the Districts of the Sacramento metropolitan area, including the Air District, agreed to reduce one ton per day of ozone precursor emissions from development projects and two tons per day from off-road heavy duty diesel construction equipment.¹² To achieve these reductions, the Air District developed CEQA significance thresholds for use in CEQA documents. These thresholds are consistent with the requirements used for stationary sources of emissions that require a permit from the District.

Toxic air pollutants and stationary sources of pollutants are separately monitored. Toxic emissions activities require permits from the Air District to comply with local, federal, and State standards. Such air pollutants are not anticipated in association with this residential project.

Naturally occurring asbestos occurs throughout foothill areas of Placer County and surrounding mountain counties. The adverse health effects of asbestos fibers are well known. The Air District promotes minimization and control of soil disturbance to limit the release of fine particulate matter, including any asbestos fibers. The "Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations" requires notification for road construction and maintenance, grading, quarries, and surface mines when the activity occurs in areas with ultramafic rock, serpentine, or naturally-occurring asbestos. These substances are known to occur in the Auburn and Foresthill areas and in the Tahoe National Forest.¹³ Such earth disturbance can release

asbestos, creating a potentially hazardous situation for construction workers and others in the immediate vicinity. The best available dust mitigation measures are required to avoid this potentially hazardous situation.

Methodology

Construction emissions were modeled using URBEMIS 2002 and model outputs can be found in **Appendix B**. All operational modeling was completed using URBEMIS 2002, the EMFAC emissions inventory software, the U.C. Davis/Caltrans Carbon Monoxide Protocol, and Caline 4. With the various computer models used to analyze air quality impacts of development and operation of the Project, detailed site information was used whenever this was available. In certain instances, detailed information was not available at the time of analysis, and reasonable assumptions were made, using Air District guidance where available.

Thresholds of Significance

The Air District regulates and oversees air quality within the Project area and has recommended the following thresholds to determine whether or not a project will result in a significant impact to air quality:

- Generate (directly or indirectly through automobile trip generation) pollutants in excess of significance thresholds developed by the Placer County Air Pollution Control District;
- Conflict with the Air Quality Element of the *Placer County General Plan* such that air quality would be substantially adversely affected;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is designated nonattainment under an applicable federal or State ambient air quality standard (see Section 5.0 of this EIR, which addresses cumulative impacts); or,
- Create objectionable odors affecting a substantial number of people.

Environmental Impact and Mitigation Measures

Impact AQ-1 Short-Term Construction Related Air Pollutant Emissions

Construction emissions were modeled using the URBEMIS 2002 air quality impact assessment software. Construction activities associated with the Project would generate particulate matter from grading, trenching, and earthmoving activities. NO_x and ROG would be emitted through the operation of construction equipment.

As indicated in **Table 3.2-3**, activities during site preparation would cause emissions in violation of Air District significance thresholds for NO_x, creating a **potentially-significant** impact. Maximum daily emissions during construction would exceed Air District thresholds for NO_x, creating a **potentially-significant** impact. Though particulate matter emissions are expected to be below significance thresholds, Air District Rule 228 (Fugitive Dust) would be required for Project site preparation and construction activities, further reducing such impacts.

Table 3.2-3
Maximum Daily Construction-Related Air Pollutant Emissions

Threshold/Phase	ROG (lbs/day)	NO _x (lbs/day)	PM ₁₀ (lbs/day)	CO (lbs/day)
Placer County APCD Thresholds	82	82	82	550
Site Preparation Phase Total (grading, worker trips, etc.)	27	218	56	195
Exceed Threshold?	No	Yes	No	No
Building Construction Total	85	127	6	136
Exceed Threshold?	Yes	Yes	No	No

Source: URBEMIS 2002, version 8.7, modeled by P&D Consultants, 2005.

Notes: The maximum daily total for any year of construction or site preparation is displayed above. Equipment types are based on the Sacramento Metropolitan Air Quality Management District 2004 document, "Guide to Air Quality Assessment," page 3-4. The equipment estimates in the guidance document represent a project of 10 acres in size and these estimates were multiplied by two for this EIR to estimate impacts based on the 18.5-acre size of the Project. URBEMIS defaults were used to determine the length of sub-phases. The PM₁₀ emission estimates presented in the table do not take into account the reduced level of dust emissions that would occur as a result of compliance with the Air District's Rule 202, which requires dust emissions to be minimized during construction activities. An error in URBEMIS prevents architectural coatings emissions from being properly estimated. Sacramento Metropolitan Air Quality Management District methodology was used to estimate the impacts of architectural coatings (65.6 lbs. per day of ROG), which is included in the estimate for building construction displayed above.

Mitigation Measure AQ-1

- The prime Project contractor shall submit a comprehensive inventory (i.e., make, model, year, emission rating) of all the heavy-duty (50 horsepower or greater) off-road equipment that will be used an aggregate of 40 or more hours for the construction phase of the Project to the Placer County Air Pollution Control District. The Project shall provide a plan for

approval by the Air District demonstrating that the heavy-duty off-road vehicles to be used in the construction of the Project, including owned, leased, and subcontractor vehicles, will achieve a Project-wide fleet-average 20 percent NO_x reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. The Air District should be contacted for average fleet emission data. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.¹⁴ In lieu of or in addition to this requirement, the Project applicant can use other measures to reduce particulate matter and nitrogen oxide emissions from the Project through the use of emulsified diesel fuel and/or particulate matter traps. The Placer County Air Pollution Control District should be contacted to discuss this measure.

- An enforcement plan shall be established to weekly evaluate Project-related on-and-off- road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180-2194. An applicant representative, CARB-certified to perform Visible emissions Evaluations (VEE), shall routinely evaluate Project-related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours.
- There shall be no open burning of vegetation removed for site preparation or installation of infrastructure. Any removed vegetative material shall be chipped or delivered to a waste-to-energy facility.
- The Project applicant shall submit for review and approval a “Construction Emission, Asbestos Dust, Fugitive Dust, and Erosion Control Plan” to the Placer County Air Pollution Control District and Placer County Department of Public Works prior to the issuance of any grading permits. The following measures or those determined in advance by the Air District to be equally effective or more effective shall be included in the Construction Emission, Asbestos Dust, Fugitive Dust, and Erosion Control Plan and construction contracts:
 - An operational water truck shall be on-site during all construction phases. Water shall be applied as needed to prevent dust impacts off-site, including applying water to the existing concrete pads during demolition.
 - Clean earth moving construction equipment with water once per day.
 - Install wheel washers or wash all trucks and equipment leaving the site.
 - Traffic speeds on all unpaved surfaces on the construction site shall not exceed 15 miles per hour.
 - Streets adjacent to the Project site shall be kept clean of dirt, mud, materials, and debris during the construction and demolition periods.
 - Construction activities shall be suspended during periods of high winds (25 miles per hour gusts or stronger).
 - Grading operations shall be suspended when fugitive dusts exceed District Rule 228 Fugitive Dust limitations.

- Keep active storage piles adequately wet or covered with tarps.
 - Inactive disturbed surface areas and storage piles shall be controlled for erosion by: keeping surfaces adequately wet, establishing and maintaining surface crusting, applying chemical dust suppressants or chemical stabilizers, covering with tarp or vegetative cover, installing wind barriers of 50 percent porosity around three sides of a storage pile, or installing wind barriers across open areas.
 - Following ground disturbance phases of site preparation, disturbed areas shall be re-vegetated or paved.
 - An applicant representative, CARB-certified to perform Visible Emissions Evaluations (VEE), shall routinely evaluate Project compliance to Rule 228, Fugitive Dust. Fugitive dust is not to exceed 40 percent opacity and is not to go beyond the site boundary at any time.
- Construction equipment shall be maintained according to equipment manufacturer's recommendations.
 - Contractors shall not operate pre-1996 heavy-duty diesel off-road and stationary source equipment on forecast Spare the Air Days.
 - No diesel-powered equipment used on-site during construction shall idle unused for more than five minutes.
 - California diesel fuel exclusively shall be used for mobile and stationary construction equipment used on-site.
 - The applicant shall use existing power sources (e.g., power poles) or clean fuel generators rather than temporary diesel power generators. If Project construction requires diesel powered generators greater than 50 horsepower, a Permit to Operate is required from the Air District.

The effectiveness of certain mitigation measures is illustrated in **Table 3.2-4**, below. As shown, ozone precursors can be reduced by approximately five percent by certain mitigation measures. URBEMIS lists several mitigation options, as well, with the maximum reduction for ozone precursors at 40 percent reduction for use of cooled exhaust gas recirculation in off-road vehicles. Additional mitigation measures listed above would reduce ozone precursors, but the effectiveness would depend on the exact implementation and the air quality conditions at the time of implementation. The reduction in short-term NO_x emissions available through the mitigation specified above may not reduce emissions to a less-than-significant level. The impact relative to criteria pollutants considered **significant and unavoidable**.

Table 3.2-4
Effectiveness of Selected Mitigation Measures

Mitigation Measure	ROG	NO_x	PM₁₀
Proper maintenance of stationary equipment	5%	5%	5%
Proper maintenance of mobile equipment	5%	5%	5%
Low VOC Asphalt	5%	0%	0%

Note: It is assumed that proper maintenance of grading equipment would reduce grading equipment NO_x by five percent also.

Source: URBEMIS 2001.

Impact AQ-2 Operational Air Pollutant Emissions

Development of the Project would also result in an increase in mobile source emissions from vehicle trips by residents of and visitors to the Project site. Landscape maintenance equipment and heating/cooling systems of Project operations would also cause air pollutant emissions.

Most air pollutants emitted by Project operations are analyzed at a regional level and are measured in pounds per day. The impacts, due to the physical makeup of the pollutants and climatic and atmospheric conditions, are more appropriately addressed relative to air quality in the Sacramento Valley Air Basin generally.

The Project would result in maximum daily emissions of 254 pounds per day of carbon monoxide, approximately 29 pounds per day of fine particulate matter, approximately 21 pounds per day of NO_x, and 87 pounds per day of ROG, 66 pounds of which is attributable to the operation of fireplaces and similar heating features assuming wood stoves and wood burning fireplaces would be used in proposed homes on-site. This is a default assumption of this version of the air quality impact assessment software used to support this EIR. As shown in **Table 3.2-5**, operational mass emissions of the Project are below Air District thresholds and considered less than significant, with the exception of ROG, which exceeds Air District thresholds. The impact of ROG is considered **potentially significant**.

Table 3.2-5
Operational Emissions (in pounds per day)

Sources/Thresholds	ROG (lbs/day)	NO_x (lbs/day)	PM₁₀ (lbs/day)	CO (lbs/day)
Vehicle Trips	11	17	11	133
Area Source Emissions	76	4	18	121
Total	87	21	29	254
Placer County APCD Thresholds	82	82	82	550
Exceed Threshold?	Yes	No	No	No

Source: URBEMIS 2002 version 8.7, modeled by P&D Consultants using Project information wherever available and URBEMIS assumptions where Project information is not specifically available. Apparent discrepancies between the subtotals for area sources and vehicles sources and the totals are due to rounding.

Mitigation Measure AQ-2

- Open burning shall be prohibited through covenants, codes, and restrictions (CC&Rs) on all lots.
- Only natural gas fireplaces will be allowed and shall be stated as such in the CC&Rs.
- HVAC units shall be equipped with PremAir (or other manufacturer) catalyst system if available and economically feasible at the time building permits are issued. The PremAir catalyst can convert up to 70 percent of ground level ozone that passes over the condenser coils into oxygen. The PremAir system is considered feasible if the additional cost is less than 10 percent of the base HVAC system.

With incorporation of the mitigation specified, the impact is considered **less than significant**.

Impact AQ-3 Exposure of Sensitive Receptors to Harmful Air Pollutant Emissions

Single-family residences abut the Project to the north, a park is located to the east, a corporation yard is located to the south, and undeveloped lands and highway commercial uses are located to the west. The park, residences, and public areas where pedestrians may be present in areas adjacent to the Project site are considered to be sensitive receptors with respect to airborne pollutant concentrations. Homes adjacent to the Project site are located approximately 50 feet from potential grading/construction areas on-site, though backyards of adjacent residents are located directly adjacent to the Project site and may be as close as 30 to 40 feet from potential grading/construction areas.

Construction activities would be limited and would occur during normal working hours. Existing rules of the Air District (especially Rule 228, Fugitive Dust – see **Appendix B**) would reduce exposure to certain hazardous air pollutants. Use of potentially airborne hazardous materials during operation of the Project is also regulated by State and federal law, enforced in California by local air pollution control districts. Mitigation measures required by this EIR to reduce particulate matter and other air pollutant emissions would also reduce exposure of adjacent sensitive receptors to substantial pollutant concentrations. Residences, once developed, are not known to produce substantial concentrations of air pollutants that would adversely affect adjacent land uses.

If rocks on-site contained asbestos, site preparation activities could release asbestos fibers into the environment, if not properly controlled. The “Asbestos Airborne Toxic Control Measure (ATCM) for Construction, Grading, Quarrying, and Surface Mining Operations” was developed to prevent hazardous situations resulting from earth disturbance in areas containing naturally occurring asbestos. For projects that could create a hazardous situation through disturbance of asbestos containing rocks, the ATCM requires an Asbestos Dust Mitigation Plan, which is reviewed and subject to approval by the Air District. The Asbestos ATCM requires dust control practices in areas where asbestos is found or likely to be found.¹⁵ Rule 228, Fugitive Dust, enforced by the Air District, also contains measures to protect against exposure to airborne naturally occurring asbestos.

A geotechnical report prepared for the Project reports on testing of samples collected on-site, indicating that, with the exception of a trace amount of chrysotile in one sample (less than one

percent), there was no presence of NOA. Mineralogic analysis also did not reveal the presence of NOA. Nonetheless, the impact is considered **potentially significant**.

Mitigation Measure AQ-1, which requires the Project applicant to prepare a “Construction Emission, Asbestos Dust, Fugitive Dust, and Erosion Control Plan,” in addition to the following mitigation measure, will reduce any impact related to NOA to a **less-than-significant** level.

Mitigation Measure AQ-3

During site preparation/grading, the Project applicant shall retain the services of a qualified geologist approved by the County to conduct sampling and mineralogic testing of rock samples collected on-site that may contain asbestos during site preparation/grading. Should concentrations of NOA minerals occur in any rock samples, work shall stop while ATCM measures and other County directed asbestos control measures are implemented and until the County and the Air District direct work to continue.

Impact AQ-4 Localized Carbon Monoxide Concentrations

Carbon monoxide is measured, in terms of both mass emissions and in localized concentrations, in parts per million (ppm) because of localized health effects. CO emissions associated with cars idling in an intersection that is operating at a level of service (LOS) of D or worse have the potential to accumulate and adversely impact the health of receptors that are located within 100 feet of an intersection.

According to the traffic analysis (Section 3.11 of this Draft EIR), the Luther Road/Canal Street intersection would operate at an LOS D under short-term plus Project without Hulbert Way through connection conditions (compared to LOS C without the Project and with the Project and Hulbert Way connection). CO modeling was completed to determine if the proposed Project would result in any violations of the one-hour 20 ppm or the eight-hour nine-ppm CO standards. The proposed Project without the through connection to Hulbert Way would generate a worst-case one-hour concentration of 4.8 parts per million (ppm) at approximately 10 feet south and 10 feet east of the intersection. This does not approach the 20 ppm standard. Using the EPA-recommended method for converting from one-hour modeled concentrations to eight-hour concentrations (where instances where eight-hour data is not available), the eight-hour concentration would be approximately 3.4 ppm at the worst-case receptor under worst-case conditions during the peak hour. The proposed Project would not exceed the one-hour or the eight-hour standard for CO. With mitigation required by this EIR, LOS at this intersection would be C, further ensuring no substantial carbon monoxide concentrations. Therefore, this would be a **less-than-significant** impact.

Impact AQ-5 Exposure to Odors

Perception of odors varies from person to person. The impact of an odor is also dependent upon wind direction and the intensity of the odor. Residential development is not known to produce objectionable odors. There are no existing sources of objectionable odor within the Project area that would adversely affect future residents at the Project site. Therefore, **no impact** would occur.

Notes and References

- ¹ California Environmental Protection Agency. *Review of the California Ambient Air Quality Standard for Ozone*. June 21, 2004.
- ² Placer County Air Pollution Control District. *Topical Report*. February 2004. Page 7.
- ³ Espana Geotechnical Consulting. *Phase I Environmental Site Assessment Update for the Proposed Bohemia Residential Development Project, Auburn, California*. November 2004.
- ⁴ Espana Geotechnical Consulting. *Geotechnical Investigation Report*. November 2004, and as updated December 2, 2004.
- ⁵ California Air Resources Board. *Air Basin Trends and Forecasts, Criteria Pollutants*. In ARB Almanac 2005. February 2005.
- ⁶ California Air Resources Board. *Air Basin Trends and Forecasts, Criteria Pollutants*. In ARB Almanac 2005. February 2005. Page 4-54.
- ⁷ Mobile sources include automobiles, motorcycles, trucks, small off-road engines and equipment, off-road recreational vehicles, farm and construction equipment, forklifts, locomotives, commercial marine vessels, and marine pleasure craft. Stationary sources include non-mobile sources such as power plants, refineries, and manufacturing facilities. Areawide sources of pollution are those where the emissions are spread over a wide area, such as consumer products, fireplaces, road dust, and farming operations.
- ⁸ Placer County Air Pollution Control District. *Topical Report*. February 2004.
- ⁹ Stiefer, Coe, Wolf, and Oliveira. *Investigating the Impact of Driving Activity on Weekend Ozone Levels using GIS/GPS Technology*. 2003.
- ¹⁰ U.S. Environmental Protection Agency, <http://www.epa.gov/air/aqtrnd95/pm10.html>.
- ¹¹ Placer County Air Pollution Control District. *Topical Report*. February, 2004.
- ¹² Placer County Air Pollution Control District. *Topical Report*. February, 2004.
- ¹³ Placer County Air Pollution Control District. *Topical Report*. February, 2004.
- ¹⁴ Contractors can access the Sacramento Metropolitan Air Quality Management District's web site to determine if their off-road fleet meets the requirements listed in this measure at www.airquality.org/ceqa/Construction_Mitigation_Calculator.xls.
- ¹⁵ Please consult the following for more information: www.arb.ca.gov/toxics/asbestos.htm.